

## CLAIMS

1. A substrate for ink jet comprising:  
a base plate formed with a heat-generating resistor for generating energy for discharging ink;  
5 an electrode wiring electrically connected with said heat-generating resistor; and  
an upper protective layer provided above said heat-generating resistor and said electrode wiring, and comprising a TaCr alloy, wherein said upper  
10 protective layer is formed with a construction made by resin on an upper portion thereof and said resin construction is fixed on said upper protective layer.
- 15 2. A substrate for ink jet according to claim 1, wherein said upper protective layer is constituted of a two-layered film formed by a lower layer of a TaCr alloy and an upper layer of Ta, and wherein said lower layer fixes a liquid flow path member as said  
20 resin construction and said upper layer is provided at a position contact with ink at least above said heat-generating resistor.
- 25 3. A substrate for ink jet according to claim 1, wherein said upper protective layer contains Cr in an amount equal to or higher than 12 atomic % (at.%).

4. A substrate for ink jet according to claim 1, wherein said upper protective layer has an amorphous structure.

5 5. A substrate for ink jet according to claim 1, wherein said upper protective layer has a thickness within a range of 50 to 500 nm.

6. A substrate for ink jet according to claim 1, 10 wherein said upper protective layer has a thickness within a range of 10 to 100 nm.

7. A substrate for ink jet according to claim 1, wherein said upper protective layer has a film stress 15 which is at least a compression stress and is equal to or less than  $1.0 \times 10^{10}$  dyn/cm<sup>2</sup>.

8. An ink jet head comprising:  
a discharge port for discharging a liquid;  
20 a liquid flow path communicating with said discharge port and having a portion for applying thermal energy for discharging said liquid to said liquid;  
a heat-generating resistor for generating said 25 thermal energy;  
an electrode wiring electrically connected with said heat-generating resistor; and

an upper protective layer provided above said heat-generating resistor and said electrode wiring, and comprising a TaCr alloy, wherein said upper protective layer is formed with a construction made  
5 by resin on an upper portion thereof and said resin construction is fixed on said upper protective layer.

9. An ink jet head according to claim 8,  
10 wherein said upper protective layer is constituted of a two-layered film formed by a lower layer of a TaCr alloy and an upper layer of Ta, and wherein said lower layer fixes a liquid flow path member as said resin construction and said upper layer is provided  
15 at a position contact with ink at least above said heat-generating resistor.

10. An ink jet head according to claim 8,  
wherein said upper protective layer contains Cr in an  
20 amount equal to or higher than 12 atomic % (at.%).

11. An ink jet head according to claim 8,  
wherein said upper protective layer has an amorphous structure.  
25

12. An ink jet head according to claim 8,  
wherein said upper protective layer has a thickness

within a range of 50 to 500 nm.

13. An ink jet head according to claim 8,  
wherein said upper protective layer has a thickness  
5 within a range of 10 to 100 nm.

14. An ink jet head according to claim 8,  
wherein said upper protective layer has a film stress  
which is at least a compression stress and is equal  
10 to or less than  $1.0 \times 10^{10}$  dyn/cm<sup>2</sup>.

15. A producing method for an ink jet head  
including, on a substrate, a heat-generating resistor  
constituting a heat generating portion, an electrode  
15 wiring electrically connected with said heat-  
generating resistor, an upper protective layer  
provided on said heat-generating resistor and said  
electrode wiring and having a contact surface with an  
ink, and a liquid flow path member formed by a resin  
20 layer on said substrate, comprising:

a step of forming an upper protective layer in  
which a Ta layer is laminated on a layer formed by a  
TaCr alloy;

a step of selectively patterning said Ta layer  
25 and selectively removing said Ta layer;

a step of forming the liquid flow path member  
in a portion where the layer formed by said TaCr

alloy is exposed by said removing.